

Appl. No. 09/711,587

Remarks

Claims 63 and 76 have been amended leaving claims 63-84 pending in the present application. Claims 63-84 stand rejected as either anticipated or obvious in view of U.S. Patent No. 5,401,676 to Lee, U.S. Patent No. 5,666,020 to Takemura and/or U.S. Patent No. 5,619,097 to Jones in various combinations. Applicant requests the Examiner re-evaluate these rejections based on the amendments to the claims provided herein.

The Examiner should appreciate the need to re-evaluate the combination of cited references in light of the amendments herein to the claims. Simply looking in such references or others for changed or added limitations is not sufficient. Such re-evaluation is required because the prior art must suggest to those of ordinary skill in the art, "that they should make the claimed composition or device, or carry out the claimed process." In re Vaeck, 947 F.2d 488, 20 USPQ 2d 1438, 1442 (Fed. Cir. 1991) (emphasis added). Further, the text of 35 U.S.C. §103(a) requires that "the subject matter as a whole" must be obvious rather than select elements. Applicant asserts that, with the claim amendment, the subject matter of the claims is transformed such that if a suggestion or motivation to combine the cited references previously existed, then it does not now. The mere fact that the prior art can be modified does not make the modification obvious "unless the prior art suggested the desirability of the modification." In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). "When prima facie obviousness is established and evidence is submitted in rebuttal, the decision-maker must start over An earlier decision should not ... be considered as set in concrete, and applicant's rebuttal evidence then be evaluated only on its knockdown ability." In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (C.C.P.A. 1976) (emphasis added).

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Claim 63 recites a cathode assembly that includes a plurality of silicon comprising emitter tips with at least one of the emitter tips being substantially conical and comprising a tip portion supported by a frustum portion with the tip and frustum portions including sidewalls. Claim 63 goes on to recite a coating over the tip portion with the coating not being along the frustum portion sidewalls. Claim 63, as amended, then recites that the coating comprises a first material comprising one or more of diamond, boron, and cesium.

The cited references do not teach or suggest an emitter tip having a first material as recited in claim 63 that comprises one or more of diamond, boron, and cesium. The Examiner has directed the applicant to U.S. Patent No. 5,401,676 to Lee for the teaching of a coating over a tip portion with the coating not being along the frustum portion sidewalls of an emitter tip. Lee describes a gate metal that can include Cr, Mo, Nb, Ta, Ti, W and Zr formed by inclinarily depositing the metal by less than 45° against the horizontal level. Lee also describes that the metal is annealed to the tip of the emitter.

The Examiner rightfully admits that Lee does not teach or suggest a coating that includes one or more of diamond, boron nitride, and cesium, but the Examiner directs the applicant to Jones for coating materials comprising diamond, boron nitride and cesium. However, there is insufficient motivation or likelihood of success to combine the Lee and Jones references to reach the limitations of claim 63 as amended. There is nothing in the Jones reference that teaches or suggests the inclinarily deposition of diamond, boron and/or cesium. While Jones describes the coating of a sputtered doped polysilicon with a barium or diamond, it does not teach or describe any method for the inclinatory deposition of the same material. As such there is no motivation to combine the Jones and Lee references as it would not be obvious to a person of ordinary skill in the art that compounds

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such as diamond, boron or cesium may be inclinatively deposited or that they are obvious substitutes for Cr, Mo, Nb, Ta, Ti, W and Zr metals as recited in Lee. For at least the reason that claim 63 is not obvious in view of the Lee and Jones reference, claim 63 is allowable.

Claim 64-77 depend from claim 63 and are allowable for at least the reasons cited above regarding claim 63 as well as their own patentable features. For example, claim 76 recites the limitations of claim 63 further comprising a second material along the frustum portion sidewall with the second material being different than the first material. The cited references neither teach nor suggest an emitter tip with such features.

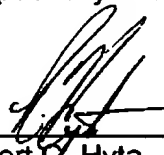
Claim 78-84 stand rejected based on as being anticipated by Takemura. However, Takemura does not teach or suggest all the limitations of these claims. More particularly, claim 78 recites a cathode assembly that includes a substrate having a plurality of substantially conical emitter tips thereover with each of the conical emitter tips terminating in a pointed apex and having a tip portion sidewall and a frustum portion sidewall. Claim 78 then goes on to recite material over the substrate and between at least two of the emitter tips with the material having an upper surface and edges contacting the frustum portion sidewall without contacting the tip portion sidewall. Claim 78 then recites that the entirety of the upper surface material is exposed. (emphasis added) Claim 78 is allowable for at least the reason that the cited references do not teach or suggest material having an upper surface and edges contacting the frustum portion of the sidewall without contacting the tip portion of the sidewall with the entirety of the upper surface being exposed. Referring to Fig. 9g as directed by the Examiner, material 4 extends to an emitter tip 2, however, an entirety the upper surface of material 4 is not exposed as

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material 6 resides over a majority of the upper surface of material 4. As such, the Takemura reference cannot anticipate claim 78 because it does not teach or suggest all of the elements of claim 78. Claim 79-84 depend from claim 78 and are allowable for at least the reasons cited above regarding claim 78.

Claim 63-84 are believed to be in immediate condition for allowance. Applicant requests allowance of claims 63-84 in the Examiner's next action. If the Examiner's next anticipated action is to be anything other than a Notice of Allowance, the Examiner is requested to contact the undersigned at (509) 624-4276 between the hours of 8:00 a.m. and 5:00 p.m. (PST).

Respectfully submitted,

Dated: 11/13/05By: 
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